

ABSTRACT

[0027] A method of filling vias for a PCRAM cell with a metal is described.

A PCRAM intermediate structure including a substrate, a first conductor, and an insulator through which a via extends has a metallic material formed within the via and on a surface of the insulator. The metallic material may be deposited on the surface and within the via. A hard mask of a flowable oxide is deposited over the metallic material in the via to protect the metallic material in the via. A subsequent dry sputter etch removes the metallic material from the surface of the insulator and a portion of the hard mask. After complete removal of the hard mask, a glass material is recessed over the metallic material in the via. Then, a layer of a metal-containing material is formed over the glass material. Finally, a second conductor is formed on the surface of the insulator.